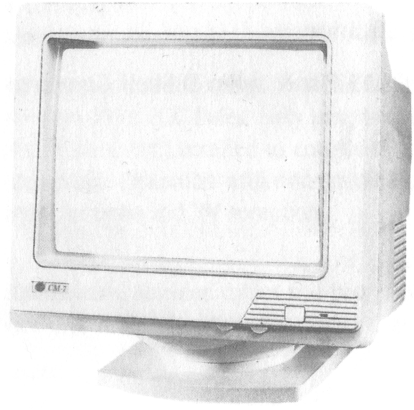
User's Manual

Multi-frequency Color Monitor



CM-8

SUNSHINE

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* Data in this manual is subject to change without notice.

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* Mac II is a registered trademark of Apple Computer, Inc.
* MDA is a registered trademark of Hercules Computer Technology.

FEDERAL COMMUNICATIONS COMMISSION RADIO FREQUENCY INTERFERENCE STATEMENT WARNING:

INSTRUCTIONS TO USERS

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide protection againsy harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy, and if not installed in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause inteference to radio and television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This equipment has been certified to comply with the limits for a Class B computing device, pursuant to Part 15 of FCC Rules. Only peripherals (computer input/output devices, terminals, printers, etc.) certified to comply to the Class B limits may be attached to this computer. Operation with non-certified peripherals is likely to result in interference to radio and TV reception.

Remarks:
To meet FCC requirements, shielded cables and power cords are required to connect the device to a personal computer or other Class B certified device.

Information to users:
Ahy changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

INTRODUCTION

This color monitor has been manufactured with only the best quality components under the highest standards of Quality Control. Please read this manual, including all safety precautions, thoroughly, to ensure proper usage and your personal safety.

IMPORTANT: Please check the Technical Specifications chart in this manual for the exact specifications of the monitor.

SAFETY PRECAUTIONS

WARNING: BEFORE PLUGGING IN THIS MONITOR, FIRST CHECK THAT THE MONITOR IS SET TO THE SAME VOLTAGE AS IN YOUR AREA. IF YOUR MONITOR IS EQUIPPED WITH A RED VOLTAGE SELECTOR SWITCH ON THE REAR OF THE UNIT, ENSURE THAT THE SWITCH IS PROPERLY SET (please refer to the Instructions on p.6 of this manual).
IF THERE IS NO VOLTAGE SELECTOR SWITCH ON YOUR MONITOR, THE VOLTAGE HAS BEEN PRESET TO THE VOLTAGE OF YOUR AREA, AS PRINTED ON THE LABEL ON THE REAR OF THE UNIT. IMPROPER VOLTAGE SETTING WILL RESULT IN DAMAGE TO THE MONITOR. IF YOU ARE IN DOUBT ABOUT YOUR MONITOR'S VOLTAGE SETTING, PLEASE CONSULT YOUR DEALER FOR ADVICE.

1. Do not modify the three-prong grounding type monitor power plug in any way.
2. Operate this unit only from the type of power source indicated on the label on the rear of the monitor.
3. Do not block or cover ventilation openings on the back or bottom of the monitor cabinet.
4. Do not place the monitor near a radiator or heating vent.
5. Do not push objects of any kind through cabinet openings. This may result in fire or electric shock.
6. Before adding attachments always ask a service technician to perform routine safety tests to determine that equipment is in safe operating condition. Ground potential tests should be part of the routine safety check made by the service technician.

7. Do not place the monitor on an unstable cart, stand, or shelf where it may fall and injure personnel or damage equipment.

8. Route power cords so that they cannot be walked upon or tripped over. Do not allow anything to rest on the power cord.

9. Do not install the monitor in a wet area, or where it may be exposed to rain or water. Do not spill liquid of any kind on the unit.

10. Unplug the power cord from the unit before cleaning the display. Use only a damp cloth. Do not use alcohol, spirits, or ammonia to clean the display. DO NOT ATTEMPT TO CLEAN THE INTERIOR OF THIS UNIT - THIS WILL BE DONE BY THE SERVICE TECHNICIAN AS PART OF NORMAL MAINTENANCE PROCEDURES.

11. Refer all servicing to qualified service personnel. REMOVAL OF THE BACK COVER BY UNAUTHORIZED PERSONNEL MAY EXPOSE THE USER TO DANGEROUS VOLTAGES OR OTHER HAZARDS.

12. Unplug the unit immediately and notify the service technician if:

    A. liquid has been spilled into the unit, or the unit has been exposed to rain or water.

    B. the unit has been dropped or the cabinet damaged.

    C. fuses continue to blow.

    D. the power cord is in any way damaged.

    E. a distinct change from normal operation is apparent.

IMPORTANT:
When replacement parts are required, be sure that the service technician uses components specified by the manufacturer and having the same characteristics as the original component. UNAUTHORIZED SUBTITUTIONS MAY RESULT IN FIRE, ELECTRIC SHOCK, OR OTHER HAZARDS.

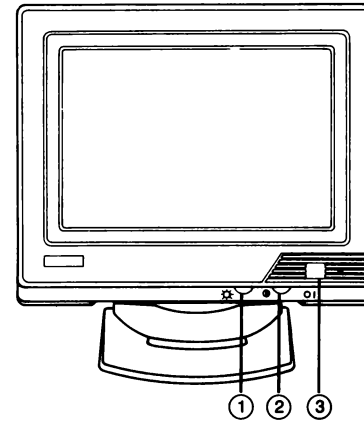
Upon completion of any service or repairs, ask the technician to perform safety checks to ensure that the equipment is in safe operating condition.

WARNING: **SERIOUS SHOCK HAZARDS EXIST WITHIN THE COVERS OF THIS MONITOR. DO NOT OPEN THE COVERS UNDER ANY CIRCUMSTANCES. THERE ARE NO USER SERVICEABLE COMPONENTS INSIDE.**

MONITOR: FRONT AND REAR VIEW

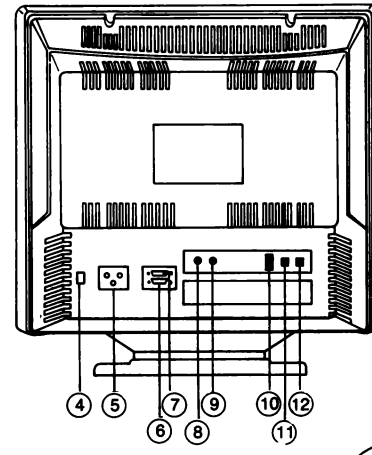
FRONT VIEW

1. Power On/Off Switch
2. Contrast Adjustment
3. Brightness Adjustment



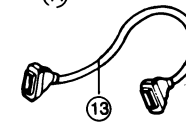
REAR VIEW

4. Voltage Selector Switch (AC 100-125 or AC 200-240) (some models only)
5. Power Input Socket.
6. Analog Signal Input Socket (9-pin)
7. TTL Signal Input Socket (15-pin)
8. Vertical Size
9. Horizontal Phase
10. Color Selector Switch
11. Vertical Size (manual/auto) Switch
12. Width Switch

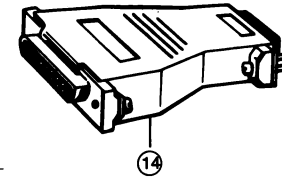


ACCESSORIES

13. TTL/Analog Signal Cable



14. Mac II Compatible Connector (Optional)

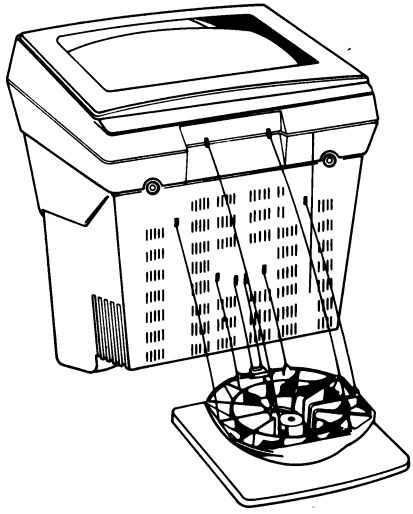


INSTALLATION

The tilt/swivel base may be disconnected and re-connected as follows:

[*IMPORTANT:* DO NOT USE EXCESSIVE FORCE]

1



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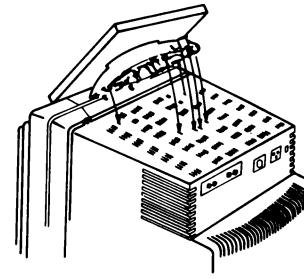

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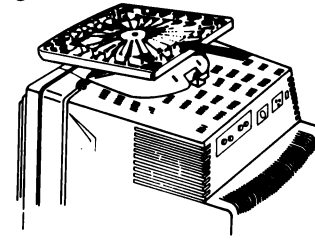
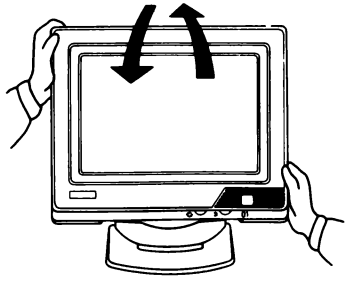
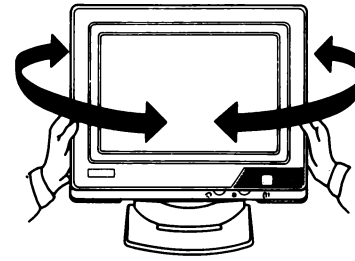


The unit may be adjusted so that the desired operating position is obtained as follows:





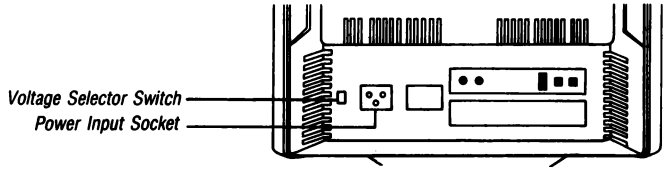
VENTILATION

In order to prevent the monitor from overheating, make sure that no ventilation openings in the cabinet are covered, and do not position the monitor near a source of heat.

OPERATING INSTRUCTIONS

1. Place the monitor in the location where you plan to use it, on top of or beside your personal computer.

2. If your monitor is equipped with a red Voltage Selector Switch on the rear of the unit, check to make sure it is set to the proper voltage for your area. If the mains voltage in your area is between 100-125VAC,.set the switch at 115V. If the mains voltage in your area is between 200-240VAC, set the switch at 200V. DO NOT PLUG IN THE MONITOR UNLESS THE VOLTAGE SWITCH IS SET TO THE SAME VOLTAGE AS IN YOUR AREA. IMPROPER SETTING OF THE SWITCH MAY RESULT IN DAMAGE TO YOUR MONITOR.



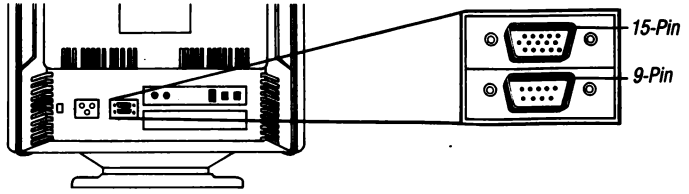
3. First connect the power cord into your monitor's power input socket, and then plug the other end of the power cord into a 3-pin AC outlet. The power cord may be connected to either a wall socket or the power output socket on your PC, depending on the type of power cord supplied with your monitor.

4. Connect the monitor to your personal computer as follows. This monitor will accept both TTL and analog input signals. The signal cable provided with the monitor is suitable for use with either a 9-pin or 15-pin output source.

   First affirm whether the signal output from your PC is a TTL or an analog signal.

   For a TTL signal output (9-pin):
   Connect the 9-pin plug of the signal cable to the socket on your PC's video adapter. Connect the 15-pin plug to the 15-pin socket (marked "TTL") on the rear of the monitor. Lock both screws to ensure proper grounding.

   For an analog signal output (15-pin):
   Connect the 15-pin plug of the signal cable to the socket on your PC's video adapter. Connect the 9-pin plug to the 9-pin socket (marked "ANALOG") on the rear of the monitor. Lock both screws to ensure proper grounding.



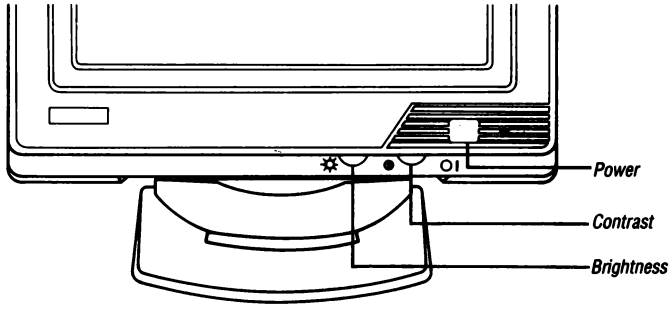
5. First turn the PC power switch ON. Then turn the monitor power switch ON. The power indicator light will illuminate.
6. Allow about 30 seconds for the display tube to warm up. Data will be displayed on the screen.
7. If your display fails to function properly, please first refer to the Trouble Shooting guide in this manual.

ADJUSTMENTS

THE CONTROLS LOCATED ON THE FRONT OF THE MONITOR MAY BE ADJUSTED AS FOLLOWS:

1. POWER ON/OFF SWITCH

Depress this switch to turn the monitor ON, and the green indicator light will illuminate. Press the switch again to turn the monitor OFF.



2. CONTRAST ADJUSTMENT

To adjust the contrast of the display image, turn the thumb-wheel designated by this symbol: ◑

3. BRIGHTNESS ADJUSTMENT

To adjust the brightness of the display image, turn the thumb-wheel designated by this symbol: ☼

In most cases, we suggest that it be adjusted to the center position.

THE CONTROLS LOCATED ON THE PANEL ON THE REAR OF THE MONITOR MAY BE ADJUSTED AS FOLLOWS:

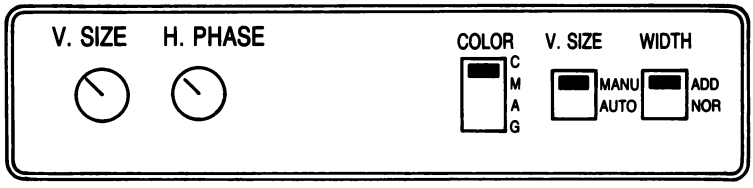
4) HORIZONTAL PHASE

The image may be positioned horizontally by turning the knob marked "H. PHASE"

5) VERTICAL SIZE

During operation in standard video display modes (see chart 1), set the V. SIZE switch to the "AUTO" position. The height of the display image will then be controlled automatically. However, should it be required, adjustment may be made manually by first setting the switch to the "MANU." position and then turning the knob marked "V.SIZE" until the desired height is obtained.

During operation in other video display modes, manual adjustment may be made in the same way, with the switch set to the "MANU." position.



Rear Controls

6) HORIZONTAL WIDTH

Should it be required, extra width may be added to the display image by setting the WIDTH switch to the "ADD" position. The width may be reduced again by setting the switch to the "NOR." position.

Note: The image may appear briefly unstable during adjustment of this switch. This is a natural circuit reaction.

7) MONOCHROME AND COLOR SELECTION

This monitor may be operated in both monochrome and color video display modes, depending on the type of signal output from your PC.

When conncted to a TTL signal output source:

the monitor may be operated in both monochrome and color modes.

If connected to a monochrome video adapter, the image displayed will be green.

If connected to a color video adapter, the image may be displayed in either green, amber or full color. To select the desired operation mode, simply set the COLOR Selector switch to the appropriate position (see chart 2).

When connected to an analog signal output source:

the monitor will automatically display the image in full color.

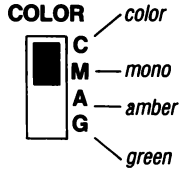
chart 1

Vertical size is controlled automatically during operation in the following video display modes:

resolution	standard
640 x 200	CGA
640 x 350	EGA/VGA
720 x 400	VGA
640 x 480	VGA
1024 x 768	8514/A

chart 2 - Color Switch Settings

input signal	video adapter	switch setting	display color
TTL	color	mono	green
TTL	color	green	green
TTL	color	amber	amber
TTL	color	color	full color
TTL	mono	any	green
analog	color	any	full color



Color Selector Switch

TROUBLE-SHOOTING

If the monitor fails to operate satisfactorily, simple checks may be made by the user as follows:

Problem	*Check/Adjust*
■ Blank Screen	• Voltage selector • Monitor power switch • Signal cable & connector • PC power switch • Brightness control knob • Contrast control knob
■ Image not central (horiz. shift)	• Horizontal phase control knob
■ Image too wide or too narrow	• Horizontal width switch
■ Vertical size too small or too large	• Vertical size control knob
■ Poor image	• Brightness & Contrast control knobs

If satisfactory operation is still not obtained, first verify that the video adapter on your PC is the correct signal output source for the monitor, and ensure that all switches are set correctly for operation in the desired mode.

If operation is still considered unsatisfactory, you should refer the monitor to qualified service personnel for servicing.

Please remember that the monitor must be returned for servicing together with the signal cable and power cord.

TECHNICAL SPECIFICATIONS

SCREEN SIZE	14"	
DOT PITCH	0.28mm	0.29mm
DISPLAY AREA (H x W)	180mm x 240mm	
DISPLAY COLORS	Infinite	
RESOLUTIONS	640 x 200 to 1024 x 768 (interlaced)	
COMPATIBILITY	8514/A MACII EGA PGC Super VGA VGA CGA MDA	
SYNCHRONIZATION		
HORIZONTAL:	15 to 38 KHz	15 to 45 KHz
VERTIKAL:	47-90 Hz	
BANDWIDTH	45 MHz	
INPUT SIGNAL	Video: RGB-Analog, TTL Sync.: TTL Separate, Composite	
SIGNAL CABLE	9 pin/15 pin D-Connector	
POWER INPUT — VOLTAGE*	100-125 VAC or 200-240 VAC	
POWER INPUT — FREQUENCY	60Hz/50Hz	
CURRENT RATING	1/0.6A	
POWER CONSUMPTION	75 W (max.)	
DIMENSIONS (H x W x D)	410mm x 372mm x 410mm	
WEIGHT	14 kg	
ENVIRONMENTAL		
OPERATING TEMP.:	10°C~35°C	
HUMIDITY:	8%~80% (non-condensing)	
STORAGE TEMP.:	0°C~65°C	
ALTITUDE:	up to 7,000 feet above sea-level	

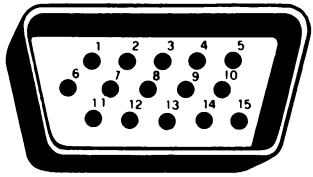
* If your monitor is equipped with a red Voltage Selector Switch on the rear of the unit, it may be operated at any of these voltages by setting the switch appropriately. If your monitor has no Voltage Selector Switch, the voltage has been preset at one of these ranges. Please refer to the label on the rear of the unit for details of your monitor's voltage setting.

Specifications subject to change without notice.

IN FUNCTIONS OF 15-PIN AND 9-PIN D-SHELL CONNECTORS

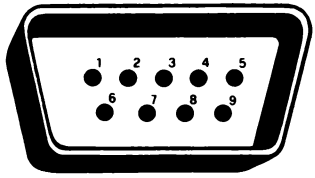
The functions of the various pins are shown below:

15-pin connector: (analog)

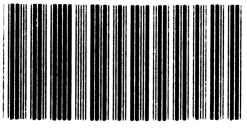


Pin#	Description	Pin#	Description
1	Red Signal	9	No Pin
2	Green Signal	10	Ground
3	Blue Signal	11	Ground
4	Ground	12	No Pin
5	Ground	13	Horizontal Sync.
6	Red Return	14	Vertical Sync.
7	Green Return	15	Ground
8	Blue Return		

9-Pin connector: (TTL)



Pin#	MDA	CGA	EGA
1	Ground	Ground	Ground
2	Ground	Ground	Red
3	No Pin	Red	Red 1
4	No Pin	Green	Green
5	No Pin	Blue	Blue
6	Intensity	Intensity	Green 1
7	Video	No Pin	Blue 1
8	Horiz. Sync.	Horiz. Sync.	Horiz. Sync.
9	Vert. Sync.	Vert. Sync.	Vert. Sync.



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